

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Canceled).

Claim 2 (Currently Amended): ~~[[The]]~~ A method of claim 25, wherein the adjusting step further comprises: for transmitting an orthogonal frequency division multiplex (OFDM) signal by using a plurality of antenna elements in a wireless transmission system, wherein the OFDM signal comprises a plurality of subcarriers, the method comprising:

detecting frequency channel characteristics of each subcarrier of the OFDM signal for each of said plurality of antenna elements,

dividing the a power of the subcarriers by the sum of the a squared magnitude of the frequency channel characteristics of the plurality of antennas,

adjusting at least one of an amplitude and phase of each subcarrier in accordance with the detected characteristics of the corresponding subcarrier frequency channel or all subcarrier frequency channels, and

transmitting the OFDM signal by using the adjusted subcarriers via said plurality of antenna elements.

Claim 3 (Currently Amended): ~~[[The]]~~ A method of claim 25, wherein the adjusting step comprises: for transmitting an orthogonal frequency division multiplex (OFDM) signal by using a plurality of antenna elements in a wireless transmission system, wherein the OFDM signal comprises a plurality of subcarriers, the method comprising:

detecting frequency channel characteristics of each subcarrier of the OFDM signal for each of said plurality of antenna elements,

dividing the transmitted signal by the a magnitude of a channel response vector,

adjusting at least one of an amplitude and phase of each subcarrier in accordance with the detected characteristics of the corresponding subcarrier frequency channel or all subcarrier frequency channels, and
transmitting the OFDM signal by using the adjusted subcarriers via said plurality of antenna elements.

Claim 4. (Currently Amended) ~~[[The]]~~ A method of claim 25, wherein the adjusting step comprises: for transmitting an orthogonal frequency division multiplex (OFDM) signal by using a plurality of antenna elements in a wireless transmission system, wherein the OFDM signal comprises a plurality of subcarriers, the method comprising:

detecting frequency channel characteristics of each subcarrier of the OFDM signal for each of said plurality of antenna elements,

dividing the transmitted signal by a channel response vector,

adjusting at least one of an amplitude and phase of each subcarrier in accordance with the detected characteristics of the corresponding subcarrier frequency channel or all subcarrier frequency channels, and

transmitting the OFDM signal by using the adjusted subcarriers via said plurality of antenna elements.

Claim 5 (Previously Presented): The method of claim 25, wherein the adjusting step comprises:

compensating, respectively, the phase of the subcarrier signals at a transmission side according to the detected frequency channel characteristics.

Claim 6 (Previously Presented): The method of claim 25, further comprising the step of:

selecting for transmission, an antenna element having the best channel characteristics for the subcarrier signal, based on the detected frequency channel characteristics at each antenna element for each subcarrier signal.

Claim 7 (Previously Presented): The method of claim 25, further comprising the step of:

distributing the power of the transmission signal to all of the plurality of antenna elements according to subcarrier frequency characteristics of a corresponding antenna element.

Claim 8 (Canceled).

Claim 9 (Currently Amended): ~~[[The]]~~ A method of claim 8, further comprising the step of: for transmitting an orthogonal frequency division multiplex (OFDM) signal by using a plurality of antenna elements in a wireless transmission system, wherein the OFDM signal comprises a plurality of subcarriers, the method comprising:

detecting frequency channel characteristics of each subcarrier of the OFDM signal for each of said plurality of antenna elements,

adjusting at least one of an amplitude and phase of each subcarrier in accordance with the detected characteristics of the corresponding subcarrier frequency channel or all subcarrier frequency channels,

limiting an adjustment of a magnitude of each subcarrier signal to an upper threshold,

fixing the transmission power of the corresponding subcarrier at the upper threshold and adapting a modulation scheme for ~~the subcarrier~~ OFDM signal when the upper threshold is reached for the subcarrier signal.

transmitting the OFDM signal by using the adjusted subcarriers via said plurality of antenna elements, and

Claim 10 (Currently Amended): The method of claim 9, further comprising ~~the step~~ of:

signaling the adaptation of the modulation scheme of a subcarrier signal to a receiving side.

Claim 11 (Currently Amended): The method of claim 9, further comprising ~~the step~~ of:

adapting the modulation scheme of a subcarrier signal by simplifying the modulation scheme.

Claim 12 (Currently Amended): The method of claim 9, further comprising ~~the step~~ of:

adapting the modulation scheme of a subcarrier signal by not modulating the subcarrier signal.

Claim 13 (Previously Presented): The method of claim 9, wherein:

when the modulation scheme of a subcarrier signal is adapted to reduce the bit rate of the subcarrier signal, the modulation scheme of at least one other subcarrier signal is changed to a more complex modulation scheme.

Claim 14 (Previously Presented): The method of claim 25, wherein the step of detecting frequency channel characteristics comprises:

detecting the frequency channel characteristics on the basis of received pilot symbols.

Claim 15 (Previously Presented): Computer software program product configured to implement a method according to claim 25 when run on a computing device of a transmitting device.

Claim 16 (Canceled).

Claim 17 (Currently Amended): ~~[[The]]~~ A transmission device of claim 26, wherein the means for adjusting comprises: adapted for transmitting an orthogonal frequency division multiplex (OFDM) signal by using a plurality of antenna elements in a wireless transmission system, wherein the OFDM signal utilizes a plurality of subcarriers, the device comprising:
means for detecting the frequency subcarrier channel characteristics of each of the plurality of subcarriers for each of said plurality of antenna elements,

a division means for dividing the subcarrier signals respectively by a sum of the squared magnitude of the frequency channel characteristics of all sub-carrier signal[[.]],

means for adjusting amplitude and/or phase of each subcarrier in accordance with the detected characteristics of the corresponding subcarrier channel, and

means for transmitting the OFDM signal by using the adjusted subcarrier signals via the plurality of antenna elements.

Claim 18 (Previously Presented): The device of claim 26, wherein the means for adjusting comprises:

a phase compensator configured to adjust the phase of the subcarriers respectively according to the detected frequency channel characteristics.

Claim 19 (Previously Presented): The device of claim 26, wherein:
the means for adjusting limits the amplitude of the subcarrier to an upper threshold.

Claim 20 (Previously Presented): The device of claim 26, wherein:
the transmission device is a base station of a wireless transmission system.

Claims 21-23 (Canceled).

Claim 24 (Previously Presented): A method for transmitting orthogonal frequency division multiplex (OFDM) symbols to be transmitted by using a plurality of OFDM subcarriers in an OFDM transmission system, the method comprising the following steps:

generating said OFDM symbols to be transmitted by using a plurality of antenna elements;

obtaining subcarrier channel response vectors corresponding to said plurality of antenna elements, wherein each of said subcarrier channel response vectors has subcarrier related elements corresponding to said plurality of subcarriers, and

applying weighting value to each of said plurality of subcarriers of said OFDM symbols in accordance with a complex conjugate of said obtained subcarrier channel response vectors.

Claim 25 (Previously Presented): A method for transmitting an orthogonal frequency division multiplex (OFDM) signal by using a plurality of antenna elements in a wireless transmission system, wherein the OFDM signal comprises a plurality of subcarriers, the method comprising:

detecting frequency channel characteristics of each subcarrier of the OFDM signal for each of said plurality of antenna elements,

adjusting at least one of the amplitude and phase of each subcarrier in accordance with the detected characteristics of the corresponding subcarrier frequency channel or all subcarrier frequency channels, and

transmitting the OFDM signal by using the adjusted subcarriers via said plurality of antenna elements.

Claim 26 (Previously Presented): A transmission device adapted for transmitting an orthogonal frequency division multiplex (OFDM) signal by using a plurality of antenna elements in a multi-carrier transmission system, wherein the OFDM signal uses a plurality of subcarriers,

the transmission device comprising:

means for detecting the frequency subcarrier channel characteristics of each of the plurality of subcarriers for each of said plurality of antenna elements,

means for adjusting amplitude and/or phase of each subcarrier in accordance with the detected characteristics of the corresponding subcarrier channel, and

means for transmitting the OFDM signal by using the adjusted subcarrier signals via the plurality of antenna elements.

Claim 27 (Previously Presented): The method of claim 25, wherein the detected frequency characteristics are subcarrier channel response vectors.

Claim 28 (Previously Presented): The transmission device of claim 26, wherein the detected frequency characteristics are subcarrier channel response vectors.